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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/752,668	01/08/2004	Yoshihisa Nagano	60188-749	4463

7590 11/29/2005

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EXAMINER

SMITH, BRADLEY

ART UNIT	PAPER NUMBER
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2891

DATE MAILED: 11/29/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/752,668	Applicant(s) NAGANO ET AL.	
	Examiner Bradley K. Smith	Art Unit 2891	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 20 October 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-14 is/are pending in the application.
- 4a) Of the above claim(s) 11-14 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-10 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 08 January 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>1/8/04</u> . | 6) <input checked="" type="checkbox"/> Other: <u>search notes</u> . |

DETAILED ACTION

Election/Restrictions

Applicant's election of group I in the reply filed on 10/20/05 is acknowledged. Because applicant did not distinctly and specifically point out the supposed errors in the restriction requirement, the election has been treated as an election without traverse (MPEP § 818.03(a)).

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1-8 and 10 are rejected under 35 U.S.C. 102(e) as being anticipated by Lee et al. (US Patent 6,815,226). Lee et al. disclose a contact plug formed within an interlayer dielectric film provided on a semiconductor region (20), and is electrically connected to the semiconductor region; a first oxygen barrier layer (30) formed on the interlayer dielectric film to be in contact with the contact plug, the first oxygen barrier layer has a conducting property and prevents the diffusion of oxygen; a second oxygen barrier layer formed in contact with the side surfaces of the first oxygen barrier layer

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(70), the second oxygen barrier layer has an insulating property and prevents the diffusion of oxygen, a lower electrode formed in contact with the top surface of the first oxygen barrier layer (40); a capacitive insulating film formed in contact with the lower electrode(50) ; and an upper electrode formed in contact with the capacitive insulating film (60) (see figure 5 or 6). With regards to claim 2 Lee et al. disclose wherein the first oxygen barrier layer includes a lower layer and an upper layer, the lower layer contains a conductive nitride (31) and is in contact with the contact plug, and the upper layer contains a conductive oxide (41) and is formed on the lower layer (column 3 lines 45-65). With regards to claim 3, Lee et al. disclose the conductive nitride is titanium nitride. With regards to claim 4, Lee et al. disclose the second oxygen barrier layer is in contact with the sides of the lower layer (figure 5). With regards to claim 5, Lee et al. disclose the second oxygen barrier layer is 10nm in thickness (column 4 lines 17-20). With regards to claims 6-8, Lee et al. disclose the second oxygen barrier layer contains aluminum oxide. With regards to claim 10, Lee et al. disclose using a BST as the capacitive insulating film (see column 3).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim 9 rejected under 35 U.S.C. 103(a) as being unpatentable over Lee et al. (US Patent 6,815,226). Lee et al. disclose a contact plug formed within an interlayer

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dielectric film provided on a semiconductor region (20), and is electrically connected to the semiconductor region; a first oxygen barrier layer (30) formed on the interlayer dielectric film to be in contact with the contact plug, the first oxygen barrier layer has a conducting property and prevents the diffusion of oxygen; a second oxygen barrier layer formed in contact with the side surfaces of the first oxygen barrier layer (70), the second oxygen barrier layer has an insulating property and prevents the diffusion of oxygen, a lower electrode formed in contact with the top surface of the first oxygen barrier layer (40); a capacitive insulating film formed in contact with the lower electrode (50); and an upper electrode formed in contact with the capacitive insulating film (60) (see figure 5 or 6). Whereas Lee et al. fails to disclose the distance between the second oxygen barrier and the contact is between 0 and 100 nm. It would have been obvious to one of ordinary skill in the art at the time the invention was made to change the dimension of the device, because it is common in the art to change the dimensions of the parts of devices (see Gardner v. TEC Systems, Inc., 725 F.2d 1338, 220 USPQ 777 (Fed. Cir. 1984), cert. denied, 469 U.S. 830, 225 USPQ 232 (1984), the Federal Circuit held that, where the only difference between the prior art and the claims was a recitation of relative dimensions of the claimed device and a device having the claimed relative dimensions would not perform differently than the prior art device, the claimed device was not patentably distinct from the prior art device.) especially with the development of new technologies.

Conclusion

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Bradley K. Smith whose telephone number is 571-272-1884. The examiner can normally be reached on 10-6.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Bill Baumeister can be reached on 571-272-1722. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Bradley K Smith
Primary Examiner
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